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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/677,584
Filing Date: October 02, 2003
Appellant(s): BECK ET AL.

Jonathan M. Harris
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/07/2008 appealing from the Office action mailed 04/04/2008.

1) Real Party of Interest

A statement identifying by name the real party in internet is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(4) Status of Amendments after Final

The statement of the status of claims contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5371852	Attanasio
6470389	Chung
6085238	Yuasa
6163853	Findlay
5682534	Kapoor
6256673	Gayman

5913921	Tosey
5963540	Bhaskaran
6266335	Bhaskaran

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 13 is rejected under 35 U.S.C 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 13 recite, "arbitrating, by the plurality of **other** processor nodes" it is not clear what other plurality of nodes applicant is referring to. Is this plurality of nodes same as disclosed in preamble of the claim or there are other plurality of nodes in addition to the one disclosed in preamble. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 43-44 and 47-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Attanasio et al. (Patent No.: Us 5,371,852), hereinafter “Attanasio”.

6. As to claim 43, Attanasio discloses, computer system, comprising:

a plurality of processor nodes, forming a cluster, each of the processor nodes coupled to a computer network (Attanasio, Fig.2, Col.6, lines 19-24, where nodes-105-108 forms a cluster and are connected to 110 interconnect);

a first one of the processor nodes executing a first receiver application for receiving data packets issued across the computer network by a client application (Attanasio, Fig.2, Col.6, lines 28-31, where any incoming packet from outer network comes to gateway-109 which is a first processor) and for configuring a received data packet in a first configuration such that the data packet is serviceable by a first high level application running on the first one of the processor nodes (Attanasio, Fig.2, Col.7, lines 49-56, where gateway 109 process the incoming packet and sends it to the right communication port);

a second one of the processor nodes servicing data packets (Attanasio, Fig.2, Element-105-108, where any of these nodes is a second node), the second one of the processor nodes executing a second receiver application (Attanasio, Fig.2, Col.7, lines 49-56, where gateway 109 routs the packet to second node and it is inherent that packet will be further processed by the second node); and

a high speed communications interface for passing packets of information between the plurality of processor nodes forming the cluster (Attanasio, Fig.2, Col.7, lines 14-16, where interconnect-110 is a high speed communication link use to passing packet to cluster nodes), the high speed communications interface (Attanasio, Fig.2, Col.7, lines 16-24, where high speed communication is disclosed e.g. token ring, Ethernet etc.) receiving the first configuration of the data packet from the first one of the processor nodes (Attanasio, Fig.2, Col.6, lines 28-31, where any incoming packet from outer network comes to gateway-109 which is a first processor) and delivering the first configuration of data packet to the second one of the plurality of processor nodes without changing the configuration (Attanasio, Fig.2, Col.7, lines 49-56, where gateway 109 routs the packet to second node, such that the data packet is serviced by a high level application running on the second one of the processor nodes (Attanasio, Fig.2, Col.7, lines 49-56, where gateway 109 routes the packet to second node and it is inherent that packet will be further processed by the second node).

7. As to claim 44, Attanasio discloses, the computer system, further comprises first Mbuf data structure for storing the first configuration of the received data packet (Attanasio, Col.11, lines 45-51, where data is stored in buffer), said first Mbuf data structure being a queue (Attanasio, Col.11, lines 56-61, where data stored in buffer means it is in the queue) for providing the received data packet to the first high level application (Attanasio, Col.11, lines 55-61, where data is processed by the program).

8. As to claim 47, Attanasio discloses, the computer system, wherein each processor node of the plurality of processor nodes is running the Digital Unix operating system (Attanasio, Col.18, lines 58-61, where UNIX operating system is disclosed).

9. As to claim 48, Attanasio discloses, wherein each of the processor nodes exchanges packets using a data structure that has an identical configuration among the processor node (Attanasio, Abstract, where matching switch table can be interpret as data structure which is used to match the incoming and outgoing messages according to the routing requirements.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claim 43-44 and 47-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al. (Patent No.: US 6470389 B1), hereinafter “Chung”.

12. As to claim 43, Chung discloses, computer system, comprising:

a plurality of processor nodes, forming a cluster, each of the processor nodes coupled to a computer network (Chung, Col.8, lines 3-5, where LAN is a computer network and cluster is plurality of processor nodes connected to LAN);

a first one of the processor nodes executing a first receiver application for receiving data packets issued across the computer network by a client application (Chung, Col.7, lines 64-67, where router receives the incoming packet across the network and process it) and for configuring a received data packet in a first configuration such that the data packet is serviceable by a first high level application running on the first one of the processor nodes (Chung, Col.7, lines 64-67, where dispatcher is the first node and execute the routing table for appropriate routing and passes it to upper layers for further processing if needed);

a second one of the processor nodes servicing data packets, the second one of the processor nodes executing a second receiver application (Chung, Col.9, lines 2-11); and

a high speed communications interface for passing packets of information between the plurality of processor nodes forming the cluster (Chung, Col.7, lines 1-15, where server 54-2 processes the packet), the high speed communications interface (Chung, Col.9, lines 11-14, where LAN is a high speed communication interface) receiving the first configuration of the data packet from the first one of the processor nodes and delivering it to the second one of the plurality of processor nodes without changing the configuration (Chung, Col.7, lines 64-67 and Col.8, lines 1-15, where dispatcher receives the packet from the router which execute the routing table for appropriate routing and dispatcher passes it to appropriate node), such that the data packet is serviced by a high level application running on the second one of the processor nodes (Chung, Col.8, lines 1-15, where server 54-2 further processes the packet).

13. As to claim 44, Chung discloses, the computer system, further comprises first Mbuf data structure for storing the first configuration of the received data packet, said first Mbuf data structure being a queue for providing the received data packet to the first high level application (Chung, Col.8, lines 1-7, where first Mbuf data structure is

equivalent to first packet received at dispatcher in first configuration and dispatcher applies the hash function upon which the packet is routed to the first high level application server for processing).

14. As to claim 47, Chung discloses, the computer system, wherein each processor node of the plurality of processor nodes is running the Digital Unix operating system (Chung, Col.4, lines 25-28).

15. As to claim 48, Chung discloses, wherein each of the processor nodes exchanges packets using a data structure that has an identical configuration among the processor node (Chung, Col.8, lines 15-25, where by passing dispatcher by using updated table/data structure to get to destination server means using the updated table which has the identical routing information for all future packet.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 8-10 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung in view of Yuasa et al. (Patent No.: US 6,085,238), hereinafter “Yuasa”.

18. As to claim 8, Chung discloses, advertising on the computer network (Chung, Abstract, where any device on network advertises/broadcasts), by each of the plurality of associated processor nodes (Fig.5, Col.8, lines 21-25), that the plurality of associated processor nodes comprise a network path to the subnet (Fig.4, Col.8, lines 54-57, where cluster of S1, S2 to S(n) can be interpret as subnet in a network and all nodes are connected to network), the plurality of associated processor nodes being free of physical connections to the subnet (Col.8, lines 57-59, where all the cluster server uses their ghost IP but has no physical connection tied to the primary IP address/);

determining, by the plurality of network routers, a routing path to the subnet (Col.8, lines 59-60, where router looks for related ghost IP), the routing path including the plurality of associated processor nodes (Col.8, lines 59-60, router routes the packet to relative server cluster); and

delivering data packets that include a destination address associated with the subnet (Col.8, lines 60-63), to one of the associated processor nodes via one of the network routers that has a physical connection to the associated processor node (Col.8, lines 62-64, where router and cluster are connected through LAN 56).

Forwarding the packets to another associated processor node using a data structure that is used by all associated processor nodes in the virtual subnet, the data structure having the same configuration for all such associated processor nodes (Chung, Col.8, lines 15-25, where ICMP message direct the router to update the routing table which is data structure and future packets by passing dispatcher and go directly to destination server can be interpret as forwarding the packets to another associated processor node which uses the same routing table as all associated server. Chung's ghost IP address can be interpreted as virtual subnet).

Chung however is silent on explicitly disclosing, a virtual subnet. Yuasa however discloses, virtual subnet based on logically defined protocol addresses independent of physical wiring (Yuasa, Col.6, lines 31-39, where virtual subnet is disclosed in a logical way and further subnet and virtual subnets are well known terms in the art to incorporate into computer network environment in various capacity e.g. VPN).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Chung with the teachings of Yuasa in order to prioritize network traffic with respect to associated processing with in the same virtual subnet in case of a node failure.

19. As to claim 34, Chung discloses, a computer system, comprising:

a plurality of processor nodes, associated with a virtual subnet (Col.7, line 66, where cluster is a virtual subnet and within cluster there are more than one servers), each of the processor nodes advertising themselves as a network route to the virtual subnet (Col.7, line 66, where all the server in clusters are interconnected and inherently broadcasting over the network and Col.8, lines 54-56, where all server has tied to single IP which is interpreted as network path), each of the plurality of processor nodes having a virtual connection to the subnet (Fig.2, Col.5, lines 49-52, Col.6, lines 19-22, where broadcasting is advertising and lines 60-61, where cluster is subnet and cluster is made of plurality of nodes);

a plurality of network routers (Col.5, lines 50-51), comprising a network coupled to each of the plurality of processor nodes, each of the network routers developing a map database indicating a network route to the subnet based upon the processor nodes advertising (Col.5, lines 49-51, where router obviously keeps a routing table and periodically updates it) ; and

a plurality of CPUs, a different one included in each node of the plurality of processor nodes, for executing an application that effectuates the advertising by the processor nodes as network routes to the subnet (Fig.2, Col.5, lines 49-50 and Col.6, lines 19-22, where advertising is to give announce the availability based on the status is same as broadcasting which tell the status of the server as if it is functional or non-functional) and

wherein one of the processor nodes forwards a packet to another processor associated with the virtual subnet using a data structure that is use by all of the processor nodes associated with the virtual subnet, the data structure having the same configuration for all processor nodes associated with the virtual subnet (Chung, Col.8, lines 15-25, where ICMP message direct the router to update the routing table which is data structure and future packets by passing dispatcher and go directly to destination server can be interpret as forwarding the packets to another associated processor node which uses the same routing table as all associated server. Chung's ghost IP address can be interpreted as virtual subnet).

Chung however is silent on explicitly disclosing, a virtual subnet. Yuasa however discloses, virtual subnet based on logically defined protocol addresses independent of physical wiring side by side to physical subnets (Yuasa, Col.6, lines 31-39, where virtual subnet is disclosed in a logical way).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Chung with the teachings of Yuasa in order to prioritize network traffic with respect to associated processing with in the same virtual subnet in case of a node failure.

20. As to claim 9, Chung and Yuasa discloses, the method for arranging a plurality of associated processor nodes in a subnet, wherein said network router splits the delivery of the plurality of data packets equally among the plurality of associated processor nodes (Chung, Col.4, lines 24-28). Chung however is silent on explicitly disclosing, a virtual subnet. Yuasa however discloses virtual subnet based on logically defined protocol addresses independent of physical wiring (Yuasa, Col.6, lines 31-39, where virtual subnet is disclosed in a logical way).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Chung with the teachings of Yuasa in order to prioritize network traffic with respect to associated processing with in the same virtual subnet in case of a node failure.

21. As to claim 10, Chung and Yuasa discloses, the method for arranging a plurality of associated processor nodes in a virtual subnet, wherein each of the plurality of associated processor nodes is running the Digital UNIX operating system (Chung, Col.4, lines 25-27).

22. As to claim 35, Chung and Yuasa disclose the invention substantially as in parent claim 39, including, a client processor node, for executing a client application that issues a data packet to an address of a processor node within the virtual subnet (Col.7, lines 39-40, where client sends the data packet to cluster's IP address and cluster is a virtual subnet); and

one network router(Chung, Fig.4,Col.7, line 44), of the plurality of network routers, having a physical connection to at least one processor node of the plurality of processor nodes associated with the subnet (Chung, Fig.4, Col.7, lines 40-45, where dispatcher is connected to LAN-56 which is connected to cluster/virtual network has a processor node as server-1) , the one network router imposing a bit mask on network addresses to form respective subnet addresses (Col.7, lines 64-67, where dispatcher applies a hash function to send the packet to correct server within the cluster subnet). Chung however is silent on explicitly disclosing, a virtual subnet. Yuasa however discloses virtual subnet based on logically defined protocol addresses independent of physical wiring (Yuasa, Col.6, lines 31-39, where virtual subnet is disclosed in a logical way).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Chung with the teachings of Yuasa in order to prioritize network traffic with respect to associated processing with in the same virtual subnet in case of a node failure.

23. As to claim 36, Chung and Yuasa disclose the invention substantially as in parent claim 39, including, wherein each of the plurality of processor nodes is running The Digital Unix operating system (Chung, Col.4, and lines 25-28).

24. Claims 13-19 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung in view of Findlay et al. (Patent No.: US 6,163,853 B1), hereinafter "Findlay".

25. As to claim 13, Chung discloses, identifying that the first processor node has stopped functioning Col.7, lines 5-9, obviously when server fails clients looses the communication and that is just one way to identify the failed processor); and

assigning an address, associated with the first processor node, to a second processor node in response to said identification that the first processor node has stopped functioning (Col.7, line 5-12, where clients are redirected to the second server and redirection can be reassigning the first server/processor address to second server/processor), such that data packets addressed to the first processor node will be redirected to the second processor node (Col.7, lines 5-12, where all clients gets redirected to second server/processor).

Chung however is silent on explicitly disclosing, "arbitrating by the plurality of other processor nodes, to determine said second processor node through which access to the subnet will occur" or "determining that the first processor node is the processor node through which all accesses occur to said subnet".

Findlay however discloses, arbitrating by the plurality of other processor nodes, to determine said second processor node through which access to the subnet will occur (Findlay, Fig. 13B, Col.6, lines 54-65, where arbitration is disclosed among plurality of servers/processors and upon election of a processor node processing is done through the elected processor for all the application as specified by time duration or job duration and since concept of arbitration among peer nodes is to elect a processor by associating the election processor to certain attributes e.g. power processing, load balancing etc. and therefore can be incorporated into any network application) and "determining that the first processor node is the processor node through which all accesses occur to said subnet" (Findlay, Fig. 13B, Col.6, lines 54-65, where concept of arbitration is disclosed which implies upon election of a processor node processing is done through the elected processor for all the application as specified by time duration or job duration and since concept of arbitration among peer nodes is to elect a processor by associating the election processor to certain attributes e.g. power processing, load balancing etc. and therefore can be incorporated into any network application),

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Findlay in order to provide a system for monitoring a status condition of a first server with a second server in a server network, and also providing synchronization and messaging between the two servers and provide a fail over protection in a clustering environment.

26. As to claim 39, Chung discloses, a plurality of processor nodes, each including a network interface module for connecting to a computer network, the processor nodes being coupled together to form a cluster (Chung, Fig.2, block-200, Col.5, lines 60-63);

a first one of the processor nodes executing a cluster management application for monitoring the processor nodes (Col.7, lines 62-63, where dispatcher is the first node loaded with management software) to determine ones of the processor nodes that are non-functioning and for identifying the non-functioning processor nodes to the other processor nodes (Col.7, lines 5-12, where failed server is replaced with non-failed server).

Chung however is silent of explicitly disclosing, “a second one of the processor nodes allocating an address, associated with at least one of the non-functioning processor nodes, to the associated network interface module” or “a second one of the processor nodes wins arbitration for access to the cluster on behalf of a network”.

Findlay however discloses, a second one of the processor nodes allocating an address, associated with at least one of the non-functioning processor nodes, to the associated network interface module (Findlay, Col.2, lines 35-53, where resource affiliation changes from primary server to secondary or backup server and this remapping is transparent to clients) or “a second one of the processor nodes wins arbitration for access to the cluster on behalf of a network” (Findlay, Fig. 13B, Col.6, lines 54-65, where concept of arbitration is disclosed which implies at least one of the nodes among the peer nodes will be elected and that node can be interpret as first, second or third node and since this node is elected via arbitration therefore it will act as on behalf of all associated networked nodes).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Findlay in order to provide a system for monitoring a status condition of a first server with a second server in a server network, and also providing synchronization and messaging between the two servers and provide a fail over protection in a cluster environment.

27. As to claim 14, Chung and Findlay disclose the invention substantially as in parent claim 13 above, including, in response to said identifying step identifying that the first processor node has stopped functioning, issuing a message, from a cluster management application associated with a cluster to which the first processor node belongs, to a plurality of other processor nodes within that cluster (Chung, Col.4, 37-42, where IP addresses in the access log contains the status of servers in the cluster also all servers tied of one virtual IP address against which they respond, therefore servers will know the status of participating servers in the cluster); and

arbitrating, by the plurality of other processor nodes of the cluster, to determine said second processor node that will receive the data packets issued to the first processor node (Findlay, Col.6, lines 54-65, where server address arbitration is disclosed).

28. As to claim 15, Chung and Findlay disclose the invention substantially as in parent claim 13 above, including, assigning, by the second processor node, a network layer address associated with the first processor node to the second processor node such that the data packets issued to the first processor node will be received by the second processor node (Chung, Col.4, lines 42-44, where address is assigned to the processor node and Col.7, lines 5-12, after failing of first server addresses are reassigned so clients can redirected to the new server in the cluster).

29. As to claim 16, Chung and Findlay disclose the invention substantially as in parent claim 13 above, including, de-assigning, by the second processor node, the network layer address associated with the first processor node after a predetermined amount of time has expired (Col.7, lines 5-12, where dispatcher detects the server failure which is first processor node, dispatcher applies the rehashed function" where one of the hashing element is predetermined time expiration". After rehashing dispatcher reroutes/de-assigns the client connection to the non-failed/second processor node server meaning client has established the connection with the non-failed sever, "second processor node" and future packets will be automatically go to non-failed server because of rehashed entry in dispatcher for this particular client).

30. As to claim 17, Chung and Findlay disclose the invention substantially as in parent claim 13 above, including, a period of time for a network router, coupled to the first and second processor nodes, to identify that the first processor node has stopped

functioning (Col.7, lines 5-9, where broadcasting means routed waits for node's reply for certain time and no reply means node has stopped functioning).

31. As to claim 18, Chung and Findlay disclose the invention substantially as in parent claim 13 above, including, wherein the network router is prevented from sending any data packets to the first processor node after the predetermined period of time has expired (Col.7, lines 5-12, where dispatcher detects the server failure which is first processor node and dispatcher applies the rehashed function" where one of the hashing element is predetermined time expiration". After rehashing dispatcher reroutes the client connection to the non-failed server).

32. As to claim 19, Chung and Findlay disclose the invention substantially as in parent claim 13 above, including, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), wherein the first and second processor nodes are executing the Digital UNIX operating system (Col.4, lines 25-28).

33. Claim 20-21 and 24, are rejected under 35 U.S.C 103(a) as being unpatentable over Chung in view of Kapoor et al. (Patent Number: 5682534), hereinafter "Kapoor".

34. As to claim 20, Chung discloses, a method for delivering a received data packet from a receiving processor node to a destination processor node (Col.7, lines 63-67), including the steps of:

configuring, by the receiving processor node, the received data packet in a predetermined configuration to form a configured data packet (Col.7, lines 62-63), said configuration being used by an application executing on the receiving processor node (Col.7, lines 62-67 and Col.8, lines 1-3);

issuing said remote procedure such that the configured data packet is delivered to the destination processor node in a manner free of being reconfigured (Col.8, lines 7-11, where node performs the final processing on the packet and sends it back to client directly by passing the dispatcher and since there is tcp/ip connection already established therefore no hashing is required).

Chung does not disclose, issuing a RPC to deliver packet. However, Kapoor discloses, binding protocols using RPC to deliver packet in a distributed processing environment (Col.1, lines 30-40).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Kapoor in order to support the integrity of connection between nodes so data can get transfer without any loss.

35. As to claim 21, Chung and Kapoor disclose the invention substantially as in parent claim 20, including, wherein the configured data packet is stored in an Mbuf data structure, said Mbuf data structure being a queue for providing received data packets to said application enabling said data packets to be serviced by said application (Chung, Col.8, lines 1-7, where “first Mbuf data structure” is the first packet received at dispatcher in first configuration before dispatcher applies the hash function, after hash

function applied it is to decide and route the packet to first high level application server for processing), and wherein each of the processor node and the destination processor node uses data structure that has an identical configuration (Chung, Col.8, lines 15-25, where ICMP message direct the router to update the routing table which is data structure and future packets by passing dispatcher and go directly to destination server can be interpret as forwarding the packets to another associated processor node which uses the same routing table as all associated server. Chung's ghost IP address can be interpreted as virtual subnet).

36. As to claim 24, Chung and Kapoor disclose the invention substantially as in parent claim 21, including, wherein each of the processor nodes of the cluster is running the Digital UNIX operating system (Chung, Col.4, lines 25-28).

37. Claims 22-23, are rejected under 35 U.S.C 103(a) as unpatentable over Chung and Kapoor as applied to claim 20-21 and 24 above in view of Gayman (Patent No.: US 6256673 B1), hereinafter "Gayman".

38. As to claim 22, Chung and Kapoor disclose the invention substantially as in parent claim 21. However, Chung and Kapoor are silent on network is based on Gigabit Ethernet interface. However, Gayman teaches, a method, wherein said high-speed communications interface is a Gigabit Ethernet interface (Gayman, Fig.4, Col.5, lines 62-63).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung and Kapoor with the teachings of Gayman in order to transfer big image or database tables on the fly at client's request in a corporate environment.

39. As to claim 23, Chung and Kapoor disclose, the invention substantially as in parent claim 21. Chung and Kapoor however are silent on, wherein said high-speed communications interface is an ATM interface. However, Gayman discloses, wherein said high-speed communications interface is an ATM interface (Gayman, Fig.4, Col.5, lines 60-61).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung and Kapoor with the teachings of Gayman in order to transfer big image or database tables on the fly at client's request in a corporate environment.

40. Claims 11 and 37 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung and Yuasa as applied to claims 8,9, 13-19, 34-36, above in view of Tosey et al (Patent Number: 5913921), hereinafter "Tosey".

41. As to claim 11, Chung and Yuasa disclose the invention substantially as in parent claim 8. However, Chung and Yuasa are silent on explicitly disclosing, OSPF routing protocol. However, Tosey teaches, using the OSPF IP routing protocol to advertise the network path (Tosey, Col.2, lines 1-3).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung and Yuasa with the teachings of Tosey in order to provide undisruptive service in case of any cluster server failure, to clients where clients are running critical applications off the servers.

42. As to claim 37, Chung and Yuasa discloses the invention substantially, including, the application that effectuates the advertising by the processor nodes as network routes to the virtual subnet (Chung, Col.10, lines 37-39, where broadcasting detects the status of the cluster server within the cluster and where cluster is a virtual subnet). However, Chung and Yuasa are silent on using OSPF protocol for advertising purpose. However, Tosey teaches, using OSPF protocol in the computer system, wherein the application that effectuates the advertising by the processor nodes as network routes to the virtual subnet implements the OSPF IP routing protocol (Tosey, Col.2, lines 1-3, where advertising means updating the status of nodes over the network, which router records in its routing table).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung and Yuasa with the teachings of Tosey in order to provide undisruptive service in case of any cluster server failure, to clients where clients are running critical applications off the servers.

43. Claims 12 and 38 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung and Yuasa in view of Bhaskaran (Patent Number: 5963540), hereinafter “Bhaskaran-540”.

44. As to claim 12, Chung and Yuasa disclose the invention substantially as in claim 8, including, using the ICMP routing protocol to advertise the network path (Chung,

Col.8, lines 20-23). However, Chung and Yuasa are silent on using RIP IP for advertising over the network path. However, Bhaskaran-540 teaches using RIP IP protocol to advertise the network path to the virtual subnet (Bhaskaran-540, Col.1, lines 55-57, where servers uses RIP IP for broadcasting to detect each other's status).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with teachings of Bhaskaran-540 in order to provide the clients undisruptive service in case of node failure in server cluster where clients running critical applications off the servers.

45. As to claim 38, Chung and Yuasa disclose the invention substantially as in parent claims 34. However, Chung and Yuasa are silent on the computer system, using RIP IP to advertise over the network. Bhaskaran-540 teaches, wherein the application that effectuates the advertising by the processor nodes as network routes to the virtual subnet implements the RIP IP routing protocol (Bhaskaran-540, Col.1, lines 55-57, where servers uses RIP protocol to advertise their status over the network).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with teachings of Bhaskaran-540 in order to provide the clients undisruptive service in case of node failure in server cluster where clients running critical applications off the servers.

46. Claims 40-42 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung and Findlay in view of Bhaskaran (Patent No.: US 6266335 B1), hereinafter "Bhaskaran.

47. As to claim 40, Chung and Findlay disclose the invention substantially as in parent claim 39. However, Chung and Findlay are silent on; network router queries the non-functioning node for a predetermined period of time. Bhaskaran teaches, at least one network router, coupling the processor nodes to the computer network, each network router continuing to query the non-functioning processor nodes for a predetermined period of time, the predetermined period of time being a routing failover delay (Bhaskaran, Col.8, lines 40-58, where network flow switch keeps monitoring the status of failing server and once the failing server becomes available it detects it, so predetermined time could be the time until non-functional node becomes available).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung and Findlay with the teachings of Bhaskaran in order to provide enhanced customer service in e-commerce environment.

48. As to claim 41, Chung, Findlay and Bhaskaran discloses the invention substantially as in parent claim 40, including, the computer system, wherein the second one of the processor nodes de-allocates the address from the associated network interface module after the routing failover delay has expired (Bhaskaran, Col.8, lines 40-58, where explained how primary and secondary servers interchangeable exchange addresses/places in case of any failover among them).

49. As to claim 42, Chung and Findlay and Bhaskaran disclose the invention substantially as in parent claim 39 above, including, wherein each of the processor nodes is running The Digital Unix operating system (Chung, Col.4, lines 25-28).

50. Claims 45-46 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung in view of Gayman.

51. As to claim 45, Chung discloses the invention substantially as in parent claim 43. However Chung is silent on high speed network being Gigabit Ethernet network. Gayman teaches, the computer system, wherein the high speed communications interface is a Gigabit Ethernet interface (Fig.4, Col.5, lines 62-63).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Gayman in order to transfer big image or database tables on the fly at client's request in corporate environment.

52. As to claim 46, Chung and Gayman disclose the invention substantially as in parent claim 43, including, the computer system, wherein the high-speed communications interface is an ATM interface (Gayman, Fig.4, Col.5, lines 60-61).

(10) Response to Argument

A. Examiner maintains the rejection of claim 13 under 35 U.S.C 112 second paragraph as it is Examiner's concern that using future tense in a claim language and further describing the limitation in a conditional manner without suggesting the alternating or parallel condition against first condition makes the claim language vague and indefinite, for instance claiming ".... access to the subnet **will occur**" implies the limitation may occur or may not occur which raises the question what if this limitation does not occur, secondly, since the second processor has taken the identity of the first processor, therefore all the traffic should be transparent to the "other" nodes. Further, arbitrating, by the plurality of "**other**" processor nodes, it is not clear what "other plurality of nodes" applicant is referring to. Is this plurality of nodes same as disclosed in preamble of the claim or there are other plurality of nodes in addition to the one disclosed in preamble. Appropriate correction is required.

B. Prior art "Attanasio" does not teach the limitation of claims 43 and 47 as "receiving a first configuration of data packet from one processor and delivering to the second processor "without" changing the configuration."

As to point (B) Examiner would like to point out the limitation from the claim 43 which describes, "**the high speed communication interface receiving** the first configuration of the data packet from the first one of the processor nodes and delivering the first configuration of the data packet to the second one of the plurality of processor nodes without changing the configuration" which is different than what applicant is arguing. As can be seen from Attanasio, Fig. 2, Col.6, and lines 37-42, nodes 105-108 is connected via interface 110 to gateway 109. Any of the nodes can be interpret as first processor which sends the data packets via interface 110. Interface 110 receives the data and without changing the configuration passes it to Gateway. Gateway 109 receives the packet and processes the packet before sending it to destination.

C. Prior art “Chung” does not teach the limitation of claims 43 and 47 as “receiving a first configuration of data packet from one processor and delivering to the second processor “without” changing the configuration.

As to point (C) Examiner would like to point out the limitation from the claim 43 which describes, “**the high speed communication interface receiving** the first configuration of the data packet from the first one of the processor nodes and delivering the first configuration of the data packet to the second one of the plurality of processor nodes without changing the configuration" which is different than what applicant has argued. As per Chung Fig. 4, Col.7, lines 39-46, where client 52 “first processor” uses a ghost IP address to send the packet via high speed communication interface "internet-60" to router-62, “second processor” or router-62 sends the packet in the first configuration to the dispatcher-64 via high speed communication and after receiving the packet dispatcher process the packet before sending to destination.

D. Prior art Chung and Yuasa does not teach the limitations of claim 8-10 and 34-36 as “that each of the associated processor nodes advertises, that the plurality of associated processor nodes comprise a network path to the virtual subnet.”

As to point (D) Examiner respectfully disagree and suggest that advertising the address on network is merely a known factor of any network device broadcasts the address on network, as disclosed in Chung Fig.5 S1, S2 and Sn are the virtual address of server-1, Server-2 and Server -"n" respectively and therefore any path associated with these virtual address can be interpret as virtual path or subnet and giving the limitation to its broadest interpretation there is no physical connection between the virtual address of S1 and the primary IP address of Server 1 and therefore we can argue that it is free of physical connection to the virtual subnet or path. Further, Yuasa discloses in abstract, a virtual LAN system forms a virtual group which is based on elements having physical attribute or logical attribute and constituting a virtual LAN, which allocates unicast and broadcast traffic bands in group units and in Col.1 Yuasa explicitly discloses, the invention relates to a virtual network switching system for mapping logical network segments to physical traffic segments for enabling dynamic reconfiguration, which definitely provides enough motivation and makes it obvious to one of the ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with Yuasa in order to have processor advertising the associated processor nodes comprise a network path to the virtual subnet.

E. Prior art “Chung and Findlay” does not teach the limitation of claim13-19 and 39 as “arbitrating … to determine said second processor node through which access to the subnet will occur”.

As to point (E) Examiner respectfully disagrees and cites Findlay, Fig. 13B, Col.6, lines 35-36 and lines 54-56, where arbitration process is disclosed among plurality of server and it is to demonstrate that server arbitration or exclusive access is well known in the art and electing the server via arbitration among peer servers can be first second third and so on, and teachings can be applied to any computer related network environment to modify the invention. Examiner’s position for arbitration limitation is selection of working or most appropriate processor to keep the traffic and data processing intact, and similar concept is disclosed in Findlay as described above.

Applicant further argues that “Findlay does not teach the limitation of dependent claim 15 which requires “assigning, the second processor node, a network layer address associated with the first processor node, a network layer associated with the first processor node to the second processor node such that the data packets issued to the first processor node will be received by the second processor node."

Examiner respectfully disagree, Findlay at numerous places has tried to resolved the failover issue by making the changes transparent to clients or associated processors to save overhead processing resources. Such concept of fault tolerance and remapping of failover server with secondary or working server is described in Col.2, lines 35-53 and transparency is described on Col.2, lines 54-55. Examiner further excerpts that further modifications would have been obvious to one of the ordinary skilled in the art at the time the invention was made.

Applicant further argues that limitation of claim 16 which depends on claim 15 above requires, "a predetermined amount of time has expired, the second node "designs... the network layer address associated with the first processor node."

It is Examiner’s position that Claim 16 is merely an intended use because to have the invention work in claim 15, the limitation of claim 16 has to be there. For instance there is a fault tolerance system described in Findlay to take over the failover node by secondary server which means there are rules/alarms or preferences setup to declare the failover incident on the network and so the transferring of server ID's and associated network address can take place (Findlay, Col.2 describes various scenarios of generating fault tolerance error warning and process of taking over the failed server by secondary server).

F. Prior “Chung and Kapoor” art does not teach the limitation of claim 20 as “passing the configured data packet to a remote procedure, said remote procedure for passing data across a high speed communications interface between processor nodes of a cluster” or “issuing said remote procedure such that the configured data packet is delivered to the destination processor node in a manner free of being reconfigured”.

As to point (F) Examiner respectfully disagrees and suggest Chung, Fig.4, Col.8, lines 23-27, where after router updates the routing table such that any future packets having the ghost IP address can bypass the dispatcher 64 and go directly to the destination server in manner free of being reconfigured and further details can be found in W. R. Stevens, TCP/IP Illustrated, Vol. 1, Ch. 6, pp. 69-83, which is incorporated by reference herein.

As to points G though K, has the dependency from the above discussed independent claims for which Examiner has sustained the rejection and proper arguments have been discussed in detail above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/T. H. /

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